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ABSTRACT

This report summarizes the work of the Jobs for Indiana's Future (JIF) program, designed to provide the Indiana Commission on Vocational and Technical Education (ICVTE) with assistance in planning for the future by enhancing ICVTE's capacity to guide Indiana's human capital investment strategy. The JIF program undertook an extensive analysis of economic and work force issues which involved the following tasks: preparing a comprehensive economic analysis of Indiana and each of 12 substate regions; convening meetings of key collectors and users of labor market information; administering a survey to 7,000 business firms; conducting in-depth interviews with chief executive officers and other key personnel in firms whose competitiveness is essential to the Indiana economy; holding interviews and discussions with educators, economic development planners, and other state and local leaders from business and labor; conducting a series of focused discussions with Indiana citizens; administering a survey to Indiana workers; and preparing an extensive communication program for the public. The resulting action plan was based on the following six strategies for success: (1) build a vocational learning system; (2) target job related learning to the jobs and skills of the future, not of the past; (3) ensure the quality of vocational education graduates so that being a vocational education graduate is synonymous with having state-of-the-art critical thinking and other future skills; (4) support and strengthen economic development activities within the state; (5) encourage greater involvement from the private sector; and (6) communicate the need to prepare Indiana for a competitive future. (NLL)

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EXECUTIVE REPORT OF THE JOBS FOR INDIANA'S FUTURE

Indiana Commission on Vocational and Technical Education

ED 305335

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Executive Report
of the
Jobs for Indiana's Future

August 1989

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Jobs for Indiana's Future program is sponsored by the Indiana Commission on Vocational and Technical Education, the U.S. Department of Labor, and grants from private sector sponsors in the State of Indiana.

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I. Preface

Indiana faces the enormous challenge of delivering appropriate education and vocational learning that will assure a competitive workforce for industries and occupations important to the state's future economy. The Indiana economy is undergoing massive restructuring as the result of several combined influences: an increasingly global economy, unprecedented technological change, a shift away from manufacturing toward other economic sectors, and a reshaping of the way many business firms are organized.

At the same time, the state faces radical demographic changes. The Hoosier workforce is aging fast, and there may not be enough young workers available to meet future labor requirements; the state's population is declining as the result of outmigration and a decline in the number of children; and the workforce lacks many of the skills needed for Indiana's economy to remain competitive in a technological future.

Together, these trends result in a growing mismatch between job requirements and the number and skills of people available to work in the future economy.

With close attention and sustained effort, Indiana's institutions must begin to bridge this gap. The combined energies of state and local government and institutions, business, education, labor, and all workers must meet the competitive challenge head-on. The Indiana Commission on Vocational and Technical Education (ICVTE) stands in the front lines for meeting this challenge--Indiana's ability to transform its economy will depend more on the vocational learning system than perhaps any other institution in the state.

This is a critical concept to understand. **The challenges of economic transition and the need to assure a competitive workforce for all of Indiana requires more than just tinkering at the margins of public educational policy. It requires a reconceptualization of how all of the state's institutions and programs fit together and work as a system.**

The Commission, like all sectors, must look to the real need for vocational learning:

(a) the client base consists primarily of Hoosiers already on the job;

(b) economic change makes the need for all workers to be competent in basic skills more important;

(c) economic change adds many new items to the list of basic skills workers must have--communication skills, working in teams, computer literacy, problem-solving, and higher order critical thinking;

(d) the workforce development delivery system that closes the skills gap must be based in the workplace, responding to the individual needs of firms and workers; and

(e) the delivery system must be decentralized and locally responsive.

Based on the year-long Jobs for Indiana's Future program, involving an extensive analysis of the Indiana economy, discussions with workers, employers, community leaders, educators, labor leaders, and others, we recommend the ICVTE take action on six separate fronts to prepare Indiana's workforce for the future (See Table on Page 3).

The Jobs for Indiana's Future Program

The Jobs for Indiana's Future program was established to assist Indiana in the process of meeting its future workforce needs. The JIF program is based on the simple premise that it is better to anticipate and plan for change than to react to it in crisis. It is also based on the knowledge that concerted action by many institutions is the best way to meet both educational and economic goals.

Jobs for Indiana's Future is a state-level public/private effort. It is sponsored by the Indiana Commission on Vocational and Technical Education (ICVTE), by the United States Department of Labor, and by grants from private sponsors throughout Indiana. The program is a research and action effort designed to provide the ICVTE with assistance in planning for the future by:

- Enhancing ICVTE's capacity to guide Indiana's human capital investment strategy through sound data analysis and to manage an integrated network of resources;
- Developing information on the changing skill requirements in industries that are pivotal to Indiana's future;
- Analyzing employer and employee training needs and practices;
- Helping to build a consensus among important constituencies for the state's future needs by educating the public about the relationship between education and the economy.

Table

JIF ACTION PLAN: SIX STRATEGIES FOR SUCCESS

I. Build a Vocational Learning System. The Commission, together with the Governor, the Legislature, and every vocational education institution, should move to make Indiana the first state in the nation to set and act on a vision of the vocational learning system as a process of continuous education for all categories of occupations and all sizes of companies.

II. Target job related learning to the jobs and skills of the future, not of the past. Indiana's public sector educators need to know a great deal more about specific labor demand and skill needs within the workplace. The education system must anticipate and plan for labor force needs, not react to them in crisis.

III. Ensure the quality of vocational education graduates so that being a vocational education graduate is synonymous with having state-of-the-art critical thinking and other future skills. The vocational learning curriculum must lead to demonstrable proficiencies in all basic skills--not just reading, writing, and computation, but the full range of 'new basic skills.'

IV. Support and strengthen economic development activities within the state. State and local leaders in Indiana must keep in mind the overriding importance of strengthening the state's economy by encouraging growth in higher wage, higher value-added industries.

V. Encourage greater involvement from the private sector. The ICVTE must take a central position representing the interests of the state in working to encourage greater private sector support for new ways of vocational learning.

VI. Communicate the need to prepare Hoosiers for a competitive future. A public education and communication effort should explain the changing economy and show how change can equal exciting opportunities for all Hoosiers.

The Six Strategies for Success are discussed in more detail in Section V of this report.

The Jobs for Indiana's Future program undertook an extensive analysis of economic and workforce issues. The work program had a number of tasks:

- JIF prepared a comprehensive economic analysis of Indiana and each of twelve sub-state regions.
- JIF convened meetings of key collectors and users of labor market information under the leadership of Dr. Andrew Sum, Director of Northeastern University's Center for Labor Market Studies.
- JIF administered a survey to 7,000 business firms in Indiana, asking them to assess the skill levels of their workforce across several essential job skills, asking for information about their employee training and development practices, and asking a series of questions about each firm's willingness to adopt new kinds of training practices.
- JIF conducted in-depth interviews with CEOs, personnel and human resource managers, supervisors, and workers in firms whose competitiveness is essential to the Indiana economy. These interviews provided qualitative information about the firm's competitive strategy, its investments in technology, its organizational practice, its training and worker education policies, and its assessment of vocational learning and occupational change.
- JIF held interviews and focused discussions with educators, economic development planners, and state and local leaders from business and labor to begin developing a consensus on the state's strategic needs concerning human resource development.
- JIF conducted a series of focused discussions with Indiana citizens to elicit their level of awareness of economic transition, and to highlight obstacles to obtaining additional employment-related education and training.
- JIF administered a survey to Indiana workers to obtain quantitative information about worker attitudes toward jobs, education, the economy, and continued learning. Results from this survey are reported in a separate document.
- JIF prepared an extensive communication program, including, newsletters, video documentaries, public service announcements, and "GamePlan" - an interactive game to help individuals plan their working futures.

II. The Context for Change

The competitive forces that are reshaping the American economy affect each state differently. Every state has a unique economy--the mix of business firms and industries that provide employment and income. Every state has a unique workforce--a different combination of experience, education, skills and knowledge that workers bring to their jobs. Every state also has a number of alternative economic futures--some bright and prosperous, others more challenging to its citizens.

Whether or not a state can develop a strong and vital economy that will provide its citizens with secure jobs and good incomes depends significantly on whether its leaders develop a unified vision of the future, and agree on what steps are necessary to achieve it.

Changes in the industrial structure of jobs have important consequences for the earnings of the state's workers and the incomes of their families. The occupational staffing patterns of industries also vary quite substantially. Thus, shifts in industrial structure will generate changes in the occupational characteristics of available job opportunities, and thereby affect the educational and skill requirements for the state's future workforce.

The global trends aren't hard to understand: the economy of the future will favor business firms and workers who are highly skilled, technically literate, willing and able to adapt, and capable of working together in cooperative teams. The next step is to put together a coherent plan for how a state develops essential skills in its workforce and coordinates that effort with its plans for economic development. The hard part for most states is agreeing on a starting point--to acknowledge the reality of the state's current human resources and the ability of public and private institutions to build on the many strengths and fix any major weaknesses.

Indiana, like most states, can point with pride to many good programs and good, flexible institutions--especially its efforts on behalf of statewide economic development. But shifting attention to the state's human resource development

needs will require a 'sea change' in attitude among political leaders, educators, business leaders, and citizens.

More than half of the new jobs that will be created in the national economy in the next ten to fifteen years will require workers to have more than a high school education. If Indiana cannot capture its fair share of growth in good jobs, then the standard of living among Hoosiers will continue to decline relative to other states (which would also increase the pressures that push people in search of better job opportunities elsewhere, perhaps increasing the outmigration of Indiana workers and leaving fewer workers to keep the state's economy going).

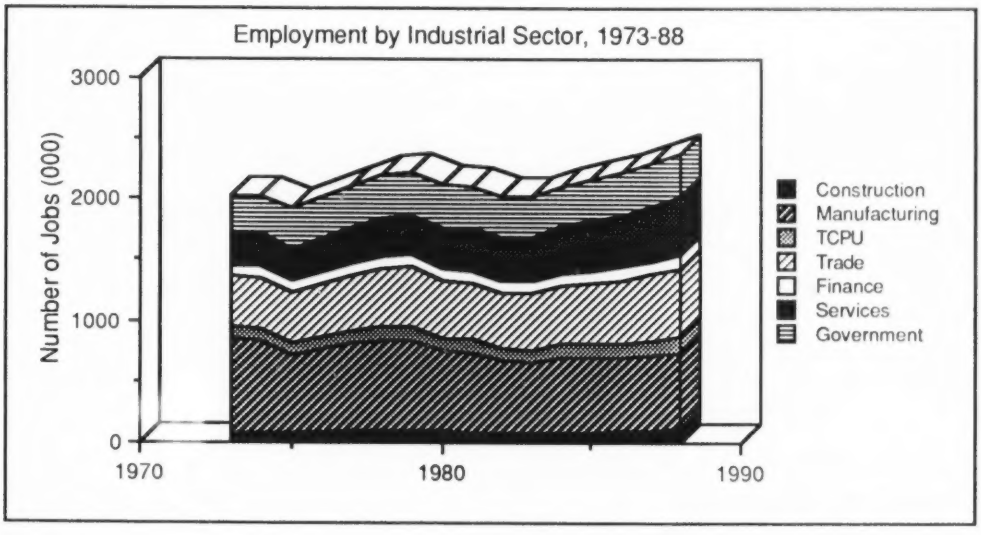
Indiana's economy offers many significant challenges. The JIF program analyzed the major issues across six dimensions--economic structure, business organizations, regions and patterns of growth, the workforce, occupations and skills, and attitudes.

A. Changes in the Economy

Indiana remains predominantly a manufacturing state. This defines the job and wage profile for its workers as well as the skills that each person must bring to the job site. Despite recent prosperity, there is reason to believe that the long-term picture of the Indiana economy presents serious challenges to educators, employers, and policymakers:

- *The economy, though shifting to a service economy like much of the United States, still depends highly on manufacturing for much of its employment and most of its income.* Indiana's manufacturing employment peaked in 1973 but still accounts for 28 percent of all employment--a much higher percentage than the nation (at about 18 percent)(see Figure One).

Figure One

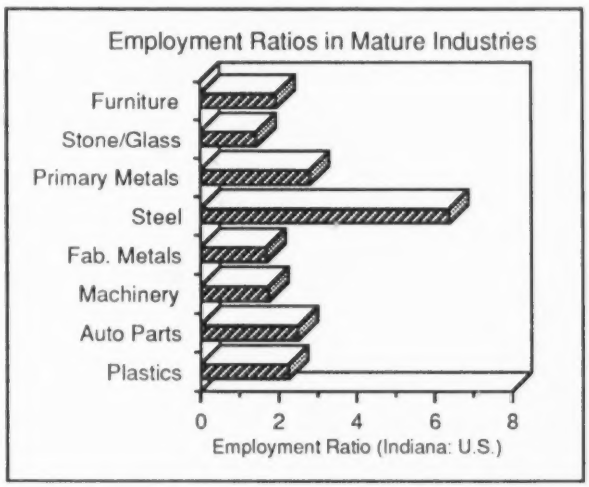


- *The Indiana economy, because of the dominance of the automotive industry and durable goods sectors, has exhibited substantial volatility over time. However, the recent years of growth should not be allowed to mask fundamental changes that have taken place over the long-term.* During the past 15 years, the Indiana economy has been characterized by substantial volatility. There have been periods of sharp employment declines (1973-75, 1980-82), modest growth (1982-86), and substantial employment gains (1975-79, 1986-88). Between 1986 and 1988, total wage and salary employment in the state expanded by 7.9 percent. Each major industrial sector posted substantial employment gains during this period. The Indiana economy actually outperformed the U.S. in job generation. Each major industry sector in the state outperformed its counterpart nationally, in some instances by a wide margin.

  Despite this sound performance of late, the directions of growth, earnings levels in growing industries, skill needs, and other fundamental economic and policy issues should be monitored carefully by political leaders, development planners, and educators.

- *Among its goods producing sectors, Indiana's industrial structure is highly concentrated in 'mature industry' firms*--firms that are not characterized by significant product innovation. Without much product innovation, these sectors are not likely to provide significant growth in employment in the near future (see Figure Two). They are also more vulnerable to international competition and business recession.

Figure Two



- *Both the manufacturing and service sectors in Indiana are experiencing a major transformation in the way that business works*--a combination of technological change and competitive pressures are leading to a downsizing of large business units, as well as organizational changes within firms. In manufacturing, the primary cause is the implementation of automated manufacturing technologies.

- *The Indiana economy is not developing a significant export-based service sector.* The kinds of service jobs added to the state's economy over the past

decade have been trade and service jobs that support a largely domestic in-state market. These include industrial sectors such as retail and wholesale trade, personal and consumer services, and some financial services.

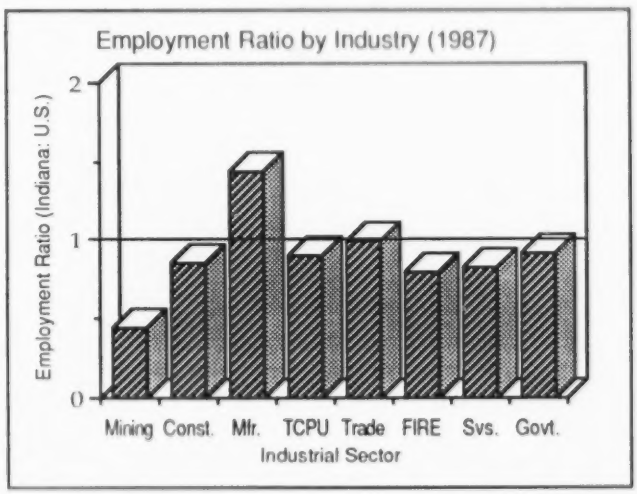
For example, the trade sector added 152,800 new jobs between 1973 and 1988, accounting for about 41 percent of *all* new jobs in the state over this period (manufacturing jobs declined by about 125,000 in the same period). Private services and trade were the dominant sources of new jobs in Indiana between 1986 and 1988--together accounting for 93,700 new jobs, or more than 50 percent of all net new job opportunities.

Not all service jobs are 'bad' jobs. An example might help illustrate this point. Twenty-five years ago, Indiana and Massachusetts had very similar economies--the population and size of the labor force were about equal, and both were highly industrialized, blue-collar manufacturing states. Since then, Massachusetts developed a service-based economy that provides information and basic business support services throughout the world, giving its residents a range of well-paid professional positions.

While Indiana has a few notable examples of service industries that serve national and international markets (health and life insurance firms are examples), the state still imports a great deal of business service from other states. Some of this is a function of geography--a high percentage of the state's population and economic activity is located near the state's borders, and draws services from Chicago, Detroit, Cincinnati, and Louisville. Some of the importing results from the high percentage of state manufacturing firms that are branch plants, and therefore are often linked to service connections that exist at the corporate level.

Overall, the economy is not service based (see Figure Three), and lacks a strong export service component.

Figure Three



- *Indiana is not growing as fast (and probably will not grow as fast) as the nation.* The net annual employment growth rate between 1973 and 1987 for Indiana was less than half the rate for the nation. In addition, the state lost more than 4 percent of its total population between 1980 and 1986. Because of the high concentration of mature manufacturing industries, Indiana is not likely to generate large numbers of new manufacturing jobs in the next ten to fifteen years.

  Indiana's economy outperformed the national economy in new job generation between 1986 and 1988. However, population decline, outmigration, the industrial structure of the state, and a high expected retirement rate will probably combine to cause limited opportunities for employment gains.

B. Changes in Business Organization

The trends mentioned above affect the kinds of occupations that are available for Hoosiers--growth in retail trade provides jobs that are very different from those lost in the manufacturing sector. These trends are further exacerbated by major shifts in business organizations, which change occupations themselves and the skills that a worker must bring to the job.

- *Employment will shift to smaller production units.* Indiana's employment in the past has been more highly concentrated in larger firms than is true of employment across the nation. Yet smaller firms are becoming more important employers in Indiana faster than in other states.
- *Supplier networks will create strong links across Indiana firms.* The trend in American business today can be summarized in two words: "downsizing" and "outsourcing"-- larger firms restructuring into far smaller independent production units in order to be more flexible and adaptable to market changes; more and more production work on components and subassemblies being contracted out to independent suppliers. Together, these trends suggest that smaller firms will have a competitive edge over larger ones for many products and services, and that there is a growing market for smaller firms to supply products that used to be made in a vertically integrated setting.
- *Smaller firms have not yet been hit by the biggest human resource issues related to new technology investments.* Workers in smaller firms constitute a significant market for remedial, technical, and vocational learning.
- *Smaller firms underinvest in their workers*--a dangerous mode for a labor-short or skills-deficient economy in the future.

C. Changes in Regions and Patterns of Growth

Indiana's patterns of growth will vary greatly across the state. Educators will have to become much better at strategizing at the local level: this means being able to accommodate the needs of economic 'hot spots', while also providing better opportunities for citizens in declining areas.

- *Indiana's future growth will likely favor a few urban areas.* Across the nation, urban economies do better than rural economies, and some urban areas do better than others. In Indiana, only four (urban) labor market areas have managed to recapture their 1979 (pre-recession) employment levels. The six areas losing employment have lost a combined 12 percent of their wage jobs.

  Total wage and salary employment in the state increased by about 7.2 percent between 1979 and 1988. Only two urban areas grew faster than the state average: Elkhart grew by about 34 percent and Indianapolis grew by about 16 percent. These two cities alone accounted for more than 70 percent of all net new jobs created in the state during that period.

  Interestingly, the balance of the state (that is, the smaller communities and rural labor markets) outside the major metropolitan communities has grown about 13 percent--faster than most urban areas over the past decade.

D. Changes in the Workforce

Workers have lost earnings because of major changes across the whole economy. Yet changes within the workforce itself will likely put new pressures on employers to stay productive and competitive.

- *Indiana's workers and working families will continue to suffer wage and income loss.* Most of the net new jobs created in the state economy are service sector jobs in retail and wholesale trade, and in other service jobs. Manufacturing jobs generally pay much higher wages than most service sector jobs, with the result that manufacturing jobs lost through general shifts in the economy show up as income loss to families. For example, the average wage for a job in retail sales is only about 40 percent of the average wage in manufacturing. For every job eliminated in manufacturing, it takes two and a half retail service jobs to replace that lost income.

"We're beginning to lose part of our middle class. Many people are getting richer or poorer, and the people in the middle are just separating out."

--An Indianapolis Worker.

JIF data demonstrate that the average weekly wages paid in Indiana increased at a slower pace than they did in the nation. This is in part a function of the shift away from high-paying manufacturing jobs toward lower paying service and trade sectors. Furthermore, the weekly wages of workers in almost every industrial sector in Indiana was low relative to their national counterparts. In fact, most of the difference in family income relates directly to the below average hourly earnings of Hoosier workers.

- *Declines in earnings may result from a larger change in compensation across all of American industry. If so, then wage competition from other regions and third world countries may push the decline further.* Pressure for low earnings is likely to be due to a variety of factors. First, the Indiana economy is relatively under-represented in a number of relatively high-wage sectors (finance, professional and business services). Second, aggregate employment of professional, technical and managerial workers in Indiana is well below the national level (these workers' earnings tend to be well above the average). Third, workers in all of Indiana's industrial sectors, except manufaturing, had lower average earnings than was true of U.S. workers in the same sectors. Part of this last difference is attributable to differences in the types of economic activities present in those sectors, and to the less intensive use of high-skilled workers in Indiana firms.

  Employers reported to JIF that compensation in the future will more closely reflect the demonstrated skills and proficiencies of each worker rather than seniority or credentials. If this trend continues as expected, the preponderance of lower-skilled workers in the Indiana workforce may be a cause for concern among all Hoosiers.

Only 22.8 percent of Indiana's employed workers held professional, technical, and managerial positions in 1988--well below the national average. This ranked Indiana 48th among all states, exceeding only Tennessee (22.1 percent) and Arkansas (21 percent)

- *Family incomes in Indiana show a growing inequality.* JIF analyzed family income distribution data for the years 1973, 1979, 1985, and 1986 in Indiana and three neighboring states: Illinois, Ohio, and Michigan. In 1973, family income distribution in Indiana had the highest degree of equality--the share of income received by the poorest 20 percent of families was the highest of the four states (and far greater than the nation), and earnings of the top 20 percent were the lowest of the midwestern states (and much lower than the nation).

  By 1986, the income groups had diverged significantly--the bottom group lost about 22 percent of earnings, and the top income quintile increased its share of total income. These trends paralleled those taking place in neighboring states and the country.

By 1986 in Indiana the top 20 percent of Indiana families received more income than the combined income earned by the bottom 60 percent of families

- *Indiana faces the future with a workforce and population that has relatively low educational attainment.* Of all Hoosiers who are 25 years of age and older, about 75.3 percent have completed high school. This compares favorably to other states in the nation; in fact, Indiana's high school graduate ratio is above the national median. However, only about 29 percent of Hoosiers have completed even a single year of post-secondary education. Indiana ranks 14th of the 15 largest states in this measure. The gap gets greater as you move up the educational ladder: less than 15 percent of this same age group had actually completed four years of college, a figure that ranks Indiana 47th among all states. Recent data shows that the state's educational attainment rates are improving, although not at the same rate as the rest of the nation.

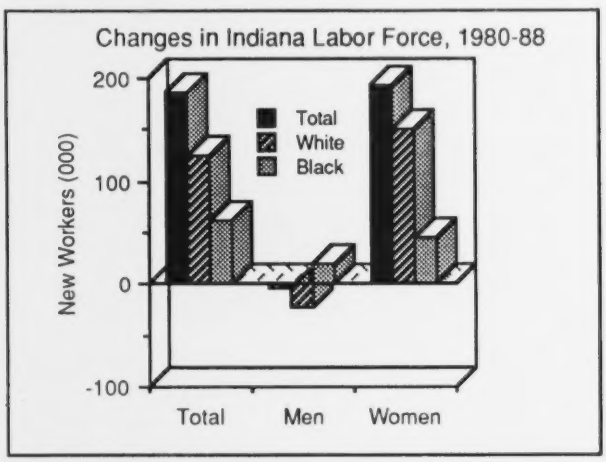
"Indiana doesn't foster career thinking. I come from Gary; they think if you move out of The Region you're giving up your career. You're expected to retire at the steel mill."

--A Health Care Worker in Indianapolis

- *The characteristics of job holders are changing.* That is, Indiana's workforce has different components. The workforce is older, more female, and has a higher percentage of minority workers than it did fifteen years ago. The feminization of the workforce is not an entirely new phenomenon--between 1973 and 1980, about 80 percent of the net new workers (new entrants to the workforce) were female (see Figure Four). This trend has increased in recent years -- between 1980 and 1987 *all* of the net new workers were women (the size of the female labor force increased by 15 percent while the size of the male workforce decreased by 3 percent).

  In 1978, half of all employed males held jobs in blue collar crafts and operative occupations (a share that was the third highest in the nation that year, behind only North Carolina and West Virginia). Employed males in Indiana still remain strongly dependent on craft and semi-skilled operative positions for their livelihoods. During 1988, about

Figure Four



43 percent of employed males still held operator, fabricator, or assembler positions.

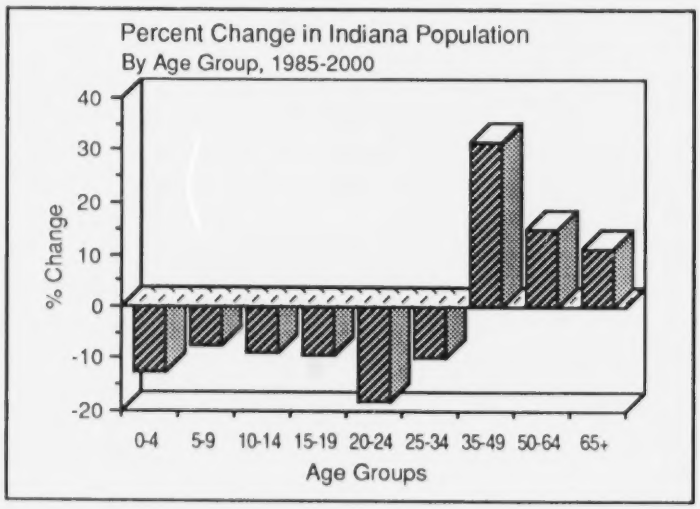
The teenage labor force fell by 14 percent during this same period, reflecting broader demographic trends at work in the state. A far higher percentage of teens worked in Indiana in 1988 than in 1980 (64.3 percent labor force participation rate vs. 59.1 percent in 1980), indicating that the decline in the number of teenagers in the workforce results from fewer teens in the age group, not a drop in the percent of teens who work.

- *Indiana's workforce is aging fast.* Indiana has lost many of its younger citizens over the past years. The size of the teenage workforce declined by 14 percent during the first seven years of the 1980s. The number of children less than age five actually dropped by 4 percent between 1980 and 1985 (compared to a 10 percent growth for this population cohort in the nation). In addition, Indiana has a very high number of workers 55 years of age and older--workers that will retire in the next five to ten years. The state will face some very high replacement demand--about 450,000 workers will retire between now and the year 2000--but must find new workers from a shrinking labor force.

- *New workers in the future will be drawn from groups that tend to lack a lengthy job history and come from educationally and socially disadvantaged backgrounds.* The Indiana Business Research Center projects that Indiana's population will grow by only 2.7 percent between 1985 and 2000 (see Figure Five). The number of people who are 35 years of age or older will grow by almost 500,000 persons (a growth of about 21 percent), but the number of people who are under the age of 35 will decline by about 350,000 persons (a drop of about 11 percent). The median age will grow from 30.7 years to 33.5 years.

The white population is expected to grow more slowly than other racial groups (less than 2 percent growth among whites, about 11 percent for black Hoosiers, and about 21 percent for other non-whites). Across the different age groups, the young white population is declining in size at a much faster rate than minorities --

Figure Five



with the result that the percentage of non-white Hoosiers will increase in almost every age group between now and the year 2000.

- *Indiana's families are changing, too.* The number of families in Indiana dropped by more than 3 percent between 1974 and 1987 (reflecting the loss of about 4 percent of total population). This loss is primarily the result of a lack of job opportunities in the state during the early years of the national economic recovery. A different kind of family unit was left behind--the number of families headed by a single female increased by 80 percent; the number of non-white families increased by 67 percent. These families will be the primary source Indiana firms must draw new workers from in the future. Yet employers and educators must understand the increased barriers that many of these families will face in finding the right kinds of education and job learning.

E. Changes in Occupations and Skill Needs

Indiana's current workforce is likely to be the biggest and best that it will have for the foreseeable future. Yet employers are reporting substantial concerns about the productivity and skill level of today's workers.

- *Indiana employers report a high level of concern about the quality of the existing labor force*--skills deficiencies in certain key occupations threaten many firms' competitiveness and profitability.

"Many manufacturing workers, highly paid by both Indiana and national standards, read and compute at below the 8th grade level. This severely limits our ability to exploit manufacturing innovations like statistical process control."

--A Manager

- *The jobs of the future will develop in a knowledge-based economy* in which workers will exercise greater discretion over their jobs. Jobs will require more and better basic skills, more technical knowledge, as well as an increased ability to work in teams, to adapt to new work environments, and to communicate better orally and in writing.

F. Changes in Attitudes

The context discussed above adds up to the need for changes on the part of workers as well as educators, employers, and others. Yet workers seem less willing to embrace the future.

- *Many Indiana workers are not fully aware of the reasons why the economy is changing.* Despite the tough years of the recession and major changes that are occuring on the job, many workers don't understand the need to

bring new skills to the workplace. JFF research revealed that many Hoosier workers believe that more education and getting higher skills are for someone else--they didn't personally feel the impact of the need to change.

"My workers need to learn that it's a new way of life. My people are probably on a coffee break right now while I am here in this interview."

--A First Line Supervisor

- *Some Hoosiers reported feeling anxious about the declines in manufacturing jobs, viewing service sector jobs as "low paying", "minimum wage", and "dead-end."*

Summary--Indiana's Competitive Reality

These large trends form the competitive environment within which Indiana firms must compete and the ICVTE must develop and implement its long-range plans. They define the context within which education and business find common ground. That context can be simply stated: future jobs require greater skills from more workers; but Indiana's workforce is not yet future literate, and new entrants to the workforce are not likely to bring significantly higher skill levels to the workplace.

Without a major shift in thinking about workforce development, employers and educators face the consequence that the current workforce is likely to be the best available for the foreseeable future. Even though the basic skills of many employees are already not adequate, and most workers lack the critical flexibility skills for the future, there is no reasonable basis to conclude that future entrants to the Indiana labor force will have these skills to greater or even comparable levels. The skill level of the existing workforce may not enable employers to make the changes necessary to stay competitive.

III. What Job Skills Do Workers Need ?

The ICVTE can guide the state's vocational learning system to assure that it accomplishes its broad mission of workforce development. The united efforts of the Commission, state leaders, educators, and the private sector have the opportunity to make a major change in the state's approach to education: Indiana can make the term "vocational graduate" synonymous with having the full spectrum of essential basic skills--the kind of critically-thinking, self-motivated, independent worker that will shape the future workplace.

This essential package of job skills has changed in recent years. Many employers and educators define basic skills with reference to workplace competence in reading, writing, and computation. In reality, with the complexity of technology, new ways of organizing the workplace, and new workforce demographics, the list of skills that most employers now consider 'basic' has expanded dramatically. JIF surveyed employers and workers to document skill needs. Results are reported below, but we first present the context of the 'new basic skills.'

"Employment or financial security means preparing yourself better than others."

--A Kokomo Worker.

A. The 'New Basic Skills'

The best description of new basic skills appears in the publication *Basic Skills*, a report issued by the American Society for Training and Development prepared under a grant from the U.S. Department of Labor, Employment and Training Administration. The new basic skills, according to ASTD, include:

- **Learning-to-learn.** This is an essential skill that every worker must have in order to learn effectively in new situations and to acquire new skills for the future. It provides the basis for lifelong learning for social as well as workplace skills.

- **Competence in reading, writing, and computation.** Society sets its own goals for literacy in the 3 Rs. Viewed only from the perspective of employers, workers must have job or occupational literacy--the ability to perform job-related reading, writing, and computation tasks demanded in the workplace. Vocational programs, especially remediation programs for adult workers, must attempt to function contextually, which means that instruction will be meaningful to workers in terms of their prior knowledge and workplace experience. Job-related computation skills refer to an employee's ability to perform different mathematical tasks such as quantification, computation, measurement, problem-solving, and comprehension.

"Companies are experiencing a dramatically increased need for a more flexible workforce, one in which workers learn broad skills and can work as interchangeable members of a team."

--A manager

- **Communication: oral and listening skills.** Oral communication refers to the exchange of thoughts, ideas and messages between a sender and a receiver. To be an effective communicator, a person needs three component skills--awareness and understanding of his or her dominant style of communication; understanding and valuing communication styles that differ from one's own; and the ability to adjust personal style to a style that differs from yours.
- **Problem-solving.** This skill refers to the ability of a worker to detect the existence of a problem, critically and creatively propose and analyze possible solutions, and choose a viable solution to resolve the issue.
- **Creative thinking.** Creative thinking refers to the use of different forms of thought to visualize innovations and generate ideas to fill a perceived need. Having a workforce with the ability to develop new and relevant ideas is a hallmark of new basic skills.
- **Personal management skills: Self-esteem, motivation/goal setting, employability/career development.** These are the building blocks for good morale and, ultimately, organizational productivity.
- **Group effectiveness skills: Interpersonal, teamwork, negotiation.** These are some of the most critical yet different skill needs for the future workplace. As workers move into a more interdependent environment, the ability to work with others to accomplish job tasks will begin to dominate. Negotiation refers to the resolution of differences through compromise, accommodation, or collaboration.
- **Influence Skills: Organizational effectiveness and leadership.** Quite simply, this is the ability to work through the social and organizational connections that exist within a firm, or between the workplace and the outside

world. Leadership motivates others to understand a goal and move toward accomplishing it.

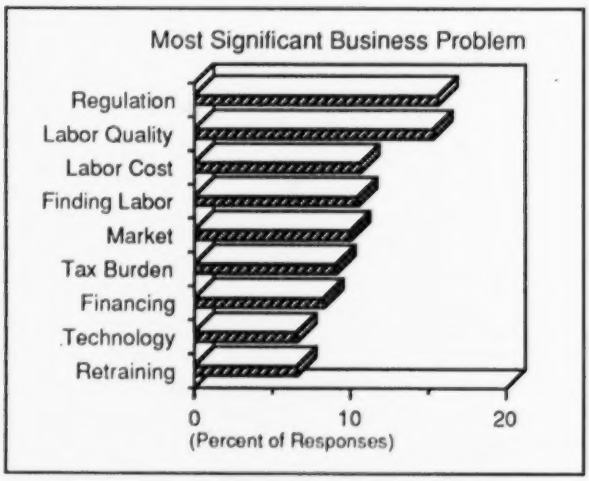
A new supervisor had this to say about 'people management' skills: "I thought you just had to tell someone to do something and it would be done."

--A new supervisor at a health care facility

B. Job Skills in the Indiana Workforce

The Jobs for Indiana's Future program surveyed Indiana employers, and asked them to assess the skill levels of their workers across several of the new basic skills--including reading, math, computer, communication, job-specific, teamwork, problem-solving, adaptability, and attitude. Close to half of all respondents cited labor quality as one of the most serious business problems they face today (see Figure Six). Skill deficiencies among the state's labor force *right now* adversely affect Indiana's competitive profile. Firms reported the most difficulty in hiring, retaining, and training workers for skilled and semi-skilled occupations.

Figure Six

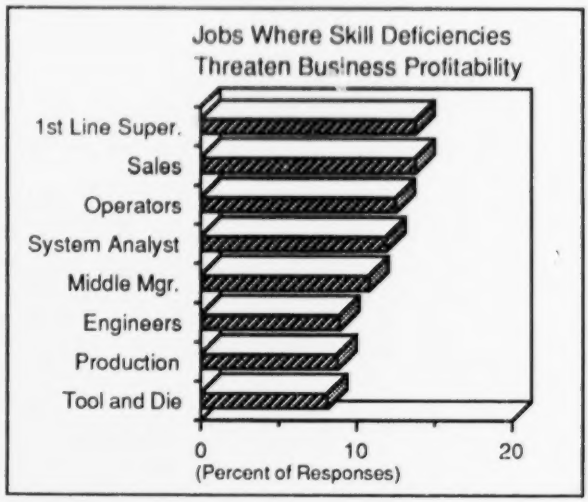


Other key survey findings include the following:

- **Indiana firms report that skill deficiencies in certain key occupations affect efficiency and profitability.** In general, occupations requiring more formal education or specialized knowledge were most likely to be listed as threatening the firm's production (see Figure Seven).

  Among salaried workers, these occupations include first line supervisors, computer analysts, marketing positions, middle managers, and engineers. Among hourly employees, these

Figure Seven



occupations include skilled craft positions such as tool and die workers, electricians, and machinists. Jobs requiring less skills or less specialized training were mentioned less often.

- **Indiana firms report difficulty in hiring, retaining, and training workers in many kinds of occupations. In general, the labor market does not work well for the semi-skilled occupations.** Employers report having the most difficulty finding and retaining qualified workers for jobs historically at the heart of the state's economy--skilled craft workers, machine operators, and general labor all proved problematic.

  Indiana firms reported less difficulty in hiring, retaining, or training workers for professional level jobs that require specialized education or skills--managers, engineers, and technicians.

- **Indiana firms report skill deficiencies in large segments of their workforce and across a wide variety of skills, despite a widespread belief that the vast majority of workers have adequate job specific skills.** Firms were asked to assess the skill levels of their current workforce. They reported whether workers' skills were poor, fair, adequate, or better than adequate across a variety of skills: reading, math, computer, communication, job-specific, problem-solving, adaptability, attitude, and teamwork (see Figure Eight through Figure Sixteen).

  * *Unskilled Workers:* In general, firms thought that unskilled workers were weakest in computer skills, problem solving, reading, math, and communication. Respondents believed workers were

Figure Eight

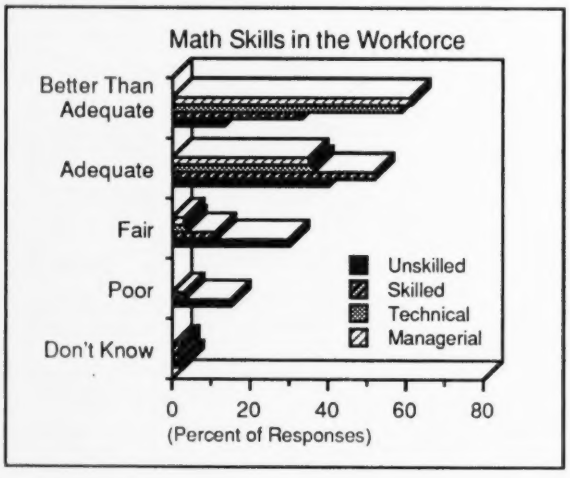
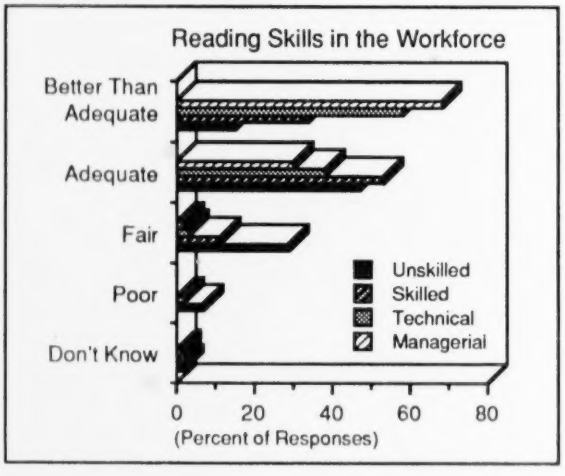


Figure Nine



adequate in job-specific skill and adaptability. Workers were ranked adequate or better than adequate for attitude and teamwork.

* *Skilled Workers:* In general, skilled workers were rated as having better skills than unskilled workers. This is not as obvious as it sounds--skilled workers by definition have a higher level of job-specific skills than others. However, their ranking across a wide variety of job-important skills may differ. The lowest ratings were given in computer skills (42 percent rated workers as less than adequate), communication (24 percent less than adequate), and problem-solving (20 percent). Skilled workers rated much better in math (85 percent), and problem solving (80 percent). The highest ratings for skills were given for reading (87 percent positive), teamwork (88 percent positive), and attitude (87 percent).

Figure Ten

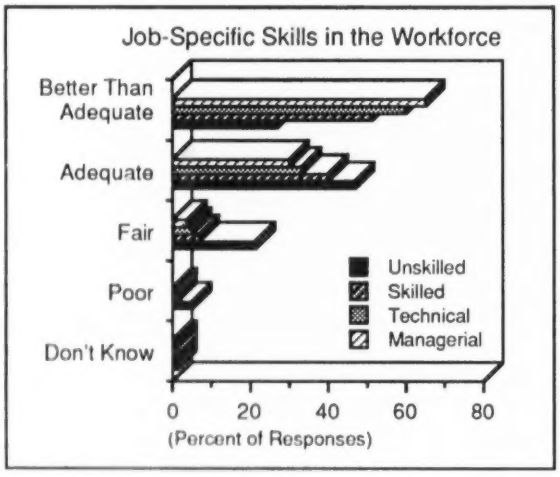
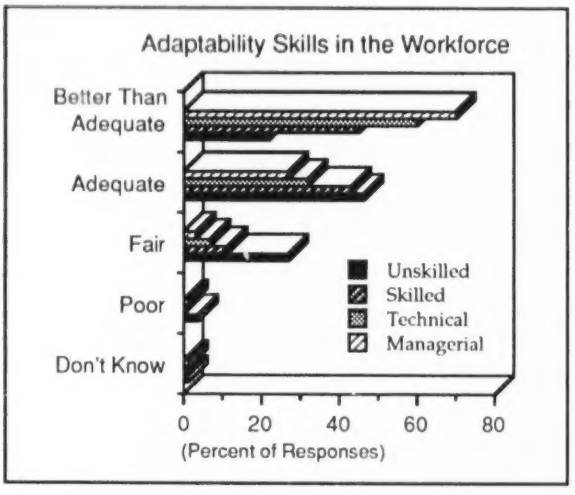


Figure Eleven



* *Technical and Professional Workers:* These workers were rated higher than unskilled and skilled workers. Firms rated technical and professional workers favorably (90 percent or better) in every skill category except computers and communication. In computer skills these workers were rated 70 percent adequate or better and 30 percent less than adequate; in communication skills these workers scored 86 percent adequate or better and 14 percent less than adequate.

* *Managerial Workers:* Managers (who filled out the survey) rated themselves very high. Firms rated managerial workers favorably - 95 percent or better in every skill category except computer skills (70 percent favorable, 24 percent unfavorable, 8 percent didn't know) and communication skills (90 percent favorable, 10 percent less than adequate).

- **Skill deficiencies affect firms in different ways.** Notable deficiencies exist, especially among unskilled and semi-skilled workers. Problems exist in basic skill areas, as well as for skills that will be more critical in the future--such as communication, interpersonal, teamwork, and computer skills. The most serious deficiencies occur in the areas of computer, problem solving, and communication skills. In general, the skill gap narrows for technical, professional, and managerial workers. Four major findings were discerned from the survey data regarding how skill deficiencies affect firms:

Figure Twelve

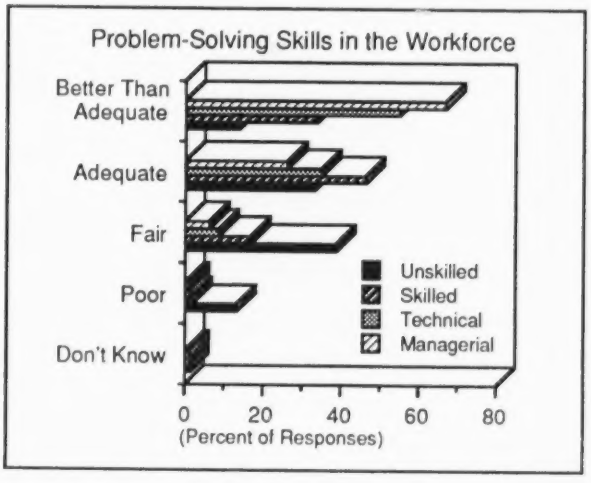
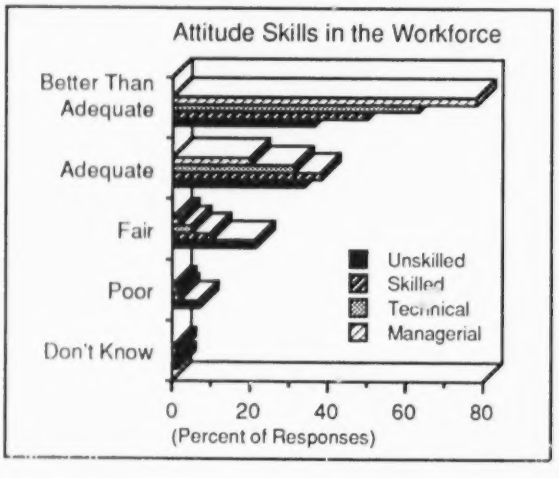


Figure Thirteen



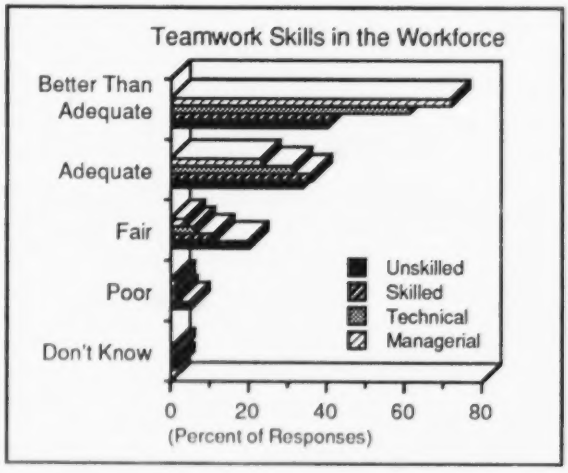
* *Skill deficiencies affect larger firms more than smaller firms.* Larger firms gave significantly lower ratings to workers at all levels (unskilled, skilled, technical and professional, and managerial) for reading skills, math skills, computer skills, and communication skills. No variation by firm size was evident for job-specific, attitude, teamwork, adaptability, and job-specific skills.

In general, Indiana firms rated the skills of managerial workers highest of all occupational groups. However, larger firms gave significantly

lower marks to their managers across all skills--essentially the only negative marks for managers came from larger firms.

* *Deficiencies in basic skills increase among firms that have a younger workforce.* Firms that had a younger workforce rated reading, math, job-specific and attitude skills of unskilled workers lower than the firms with an older workforce. In fact, younger firms rated reading and job-specific skills worse across all occupational groups.

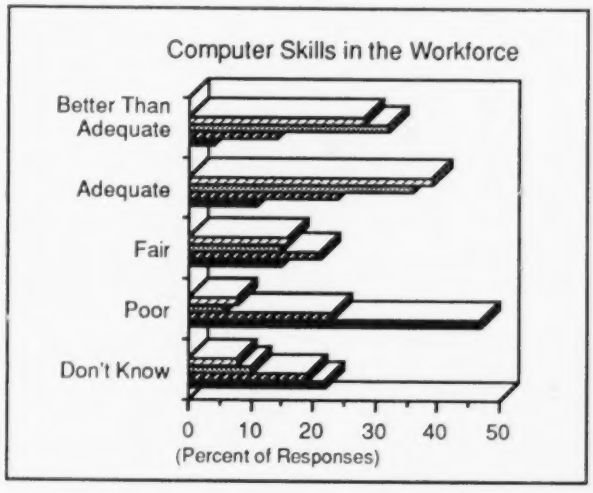
Figure Fourteen



* *Deficiencies in skills critical to the future economy increase among firms with an older workforce.* Skills that are widely acknowledged to be key attributes for the future workforce--communication skills, teamwork skills, and computer skills--were rated lower among firms with an older workforce. Employees for all occupational groups in older firms rated lower for computer skills.

* *Skills that will be more critical in the future economy were rated better for workers in firms where workers are represented by collective bargaining.* The presence of collective bargaining within firms resulted in higher ratings among the skilled, technical, professional and managerial workers for communication, attitude, and teamwork skills.

Figure Fifteen



Unionized firms did not vary significantly from non-union firms in any skill rating when controlling for size of firm. That is, lower ratings for basic skills given for union firms were explained by the fact that the firms were large employers, not because they were unionized.

Figure Sixteen

- **Indiana's substantial workforce challenges are likely to increase in the years to come.** Like most states in the country, Indiana operates in a new competitive environment. To compete effectively in the economy, businesses must invest in new technologies. Of the firms surveyed, 85 percent believed that having state-of-the-art technology was important to corporate strategy.

  Continuous changes in technology, in turn, have a profound impact on skill requirements for many firms. Nearly 40 percent of survey respondents reported that technological change in the past three years had increased job skill requirements (but, unfortunately, only 20 percent of all Indiana firms report that they have increased their formal training over the last five years).

"Literacy is an increasingly important concern. But there are no literacy programs here because the union did not want to embarrass its members."

--A shift supervisor

C. Workforce Issues and Small Business

Any strategy to expand access to workplace education will have to reach the smaller firms. Helping small and medium-sized firms be more competitive through greater workforce training is a significant challenge. As in all states, the great majority of business establishments have few employees: about 95 percent of the 119,527 establishments in Indiana in 1986 employed fewer than 50 workers. Three out of four manufacturing establishments in 1986 had fewer than 50 employees.

Only 5 percent of manufacturing establishments in Indiana had 250 or more employees.

Moreover, the restructuring of the U.S. and Indiana economies in the face of intense technological changes is shrinking many large firms. Nationally recognized economists have documented this trend toward downsizing among larger firms and the proliferation of smaller operating units. This change is attributed to changes in the competitive strategies and organizational decisions of large firms.

Blue Cross-Blue Shield of Indiana exemplifies the trend toward downsizing. Blue Cross-Blue Shield has decided to reorganize its corporate structure, spinning off each profit center into a wholly-owned, separate operating unit and leaving only overhead support and management functions in the corporate shell. Each new unit is projected to have less than 200 employees.

The amount of employer-sponsored learning available to employees of small firms is dramatically lower than for employees of the nation's largest firms. Moreover, the training received in smaller firms is predominantly informal. This underprovision has a number of root causes:

- Smaller firms have difficulty maintaining production or services if they let workers off regularly for training courses.
- Smaller firms have a higher employee turnover rate. This is probably related to the limited paths for advancement and lack of fringe benefits characteristic of small firms. Employers are hesitant to absorb training costs they may not recoup because employes leave for other firms.
- Managers of smaller firms are less knowledgeable about training options, and less able to select programs or courses directly and immediately useful to production.
- Smaller firms typically have smaller profit margins and lower capitalization, and are less able to pay for workforce investments.
- Smaller firms are less likely to employ personnel administrators to develop or review training options.

According to JIF's survey results, employees in larger firms received far more formal and informal training than employees of smaller firms. Managers in smaller firms were more than twice as likely to receive no formal training than managers in large firms. Professional, technical, and skilled craft workers in small firms were one-third as likely to have any formal training. Machine operators, clerical, sales, and service workers were one-fourth as likely to have any training.

This does not differ greatly from national figures. According to the U.S. Small Business Administration, only 27 percent of employees in companies with fewer than 25 employees received any training (compared to about half of employees in companies with 500 or more employees). Employers with more than 500 employees provide almost three times as much formal training in the first three months of employment as their smaller counterparts. Workers in smaller firms also pay more

for their own training: workers in smaller firms pay for 77 percent of training done outside their workplace compared to 68 percent for workers in larger firms.

In reality, only the largest firms in the nation--firms of more than 10,000 employees--have the resources, staff, and organizational sophistication to make training central to their competitive strategies and daily operations. A firm with 500 employees may have a personnel director; a firm of over 1,000 employees may have an individual who is designated as in-house trainer. Only at the level of the large corporation are there elaborate, coordinated training procedures in place.

"The half life of an engineer's knowledge is only five to seven years now and dropping fast. Many of our engineers have already lost touch with the technology."

--A Manager

For the small firms that make up the majority of American manufacturing companies, formal training is the exception, not the rule. In service industries, too, size of firm has a powerful effect on the amount of formal learning, the quality of training, where it takes place, and who pays for it.

Regardless of firm size, training of non-supervisory and non-professional employees is limited. Indiana employers reported that managerial and administrative workers are more than twice as likely to have some formal training than any other occupational group.

National statistics confirm this. In a 1977 Conference Board study, 60 percent of the firms surveyed (all of which had 500 or more employees) provided in-house courses for professional-technical workers while only 11 percent of firms provided in-house courses for hourly workers. The emphasis on training for managerial and professional workers creates an ironic imbalance: better educated workers receive a disproportionately large share of training. Workers with four or more years of college, which comprise only about 18 percent of the workforce, constitute 35 percent of trainees. Workers with less than a high school degree, about 23 percent of the labor force, comprise only five percent of the trainees.

D. Implications for Policy Geared Toward Small Business

Institutional mechanisms exist that could accomplish the goal of serving the human resource needs of small firms. Indiana Vocational Technical College (Ivy Tech), for instance, is regionally located, is mandated to provide training assistance to local firms, and has the potential for playing an important role in reaching smaller companies. The college lacks hard data on its client base, and is therefore unable to specify the distribution of its clients by size. Yet even its own business and industry coordinators acknowledge that the institution is inadequate to serve the needs of smaller firms. Why? This structure has a built-in incentive for working with large employers rather than smaller ones:

- Large firms are more likely to know what they need in the way of workforce development and/or technical training;
- Larger firms are more likely to have a staff position dedicated to relations with training providers;
- Because Ivy Tech business and industry training programs must pay for themselves, there is an institutional bias toward larger firms. As one coordinator phrased it, "Our programs have to be profit driven, so we tend to go with the larger firms--the ones with the money and budget authority to buy training."

Ivy Tech discovered the extent of the problem of reaching small businesses during 1988, when it convened a series of regional meetings that brought together representatives of local small firms to discuss training. In evaluating the effort, an IVTC administrator noted that "the first thing we learned is that most small business owners and managers are not 'training literate.' They don't know how to think about training for their employees; they don't know what is available; they don't know where to begin."

Many of the firms attending these regional meetings argued that they really needed someone to come in and help them develop a training strategy and program. Yet this places an enormous burden on an institution like Ivy Tech, with its very limited resources. The time investment needed to help smaller firms get to the place where they could begin to expand their training efforts--worker assessment, assistance with sources of subsidies or financing, help with ROI calculations for different training options--is too great for existing staffing. Yet, such a strategy might be the best way to help Indiana's economy.

[Ivy Tech is not discussed here to point the finger of blame, nor is it highlighted to argue that it is necessarily the best candidate to improve outreach to small and medium-sized firms. Rather, the Ivy Tech example serves to underscore one important fact: it is hard to build and fund an institution to reach a small business client base. There are significant disincentives involved in making the small business connection, barriers that need addressing when shaping public policy in this field.]

The same institutional problems have surfaced with regard to Indiana's state funded customized training programs--the Basic Industry Re-Training (BIRT) and Training For Profit (TFP) programs. Both programs have been used almost exclusively by the state's largest firms. This is not surprising, nor is Indiana unique in this regard. Large firms know how to 'play the system'--they know where to go for public sector assistance, how to secure it, and they have the political clout to back up their requests.

This means that state dollars for training subsidies have been directed to the firms most likely to provide training by themselves. In such a circumstance, public expenditures for customized training are a license for substitution--displacement by public funds of private monies that would have been spent in any case.

Both large and small firms should have access to state-sponsored training. Large firms, because of their centrality to the state, are also critical to future economic health. Indiana needs to consider ways in which the incentive value of its training programs is used to achieve the most strategic priorities for both large and small firms.

IV. The Vocational Learning System in Indiana

A system is defined by its linkages. There are three general dimensions along which the JIF program organized its review of Indiana's vocational learning system:

- *Internal issues:* What goes on in any given school or program, and how can it be improved? What kinds of data are useful to make sure that an accurate picture is drawn of the system as it exists?
- *Links with the private sector:* How well does the system reach out to the private sector and respond to changing needs?
- *Links to the state economic development system:* How well does the vocational learning system reflect the state's economic development strategy? How well is it integrated into state economic development programs and policies?

A. Internal Issues

Indiana's educational system evolved to serve its manufacturing economy. Training in institutions and programs mirrored the type of mass production employment that dominated the state between 1950 and 1970. The educational system prepared workers for fairly static occupations and skill levels in the manufacturing sector (*e.g.*, lots of job-specific skills, but no real emphasis on advanced skills, or even good basic reading skills).

Like many states, Indiana's economy has changed dramatically and left the educational system behind. The output of the education system has adjusted somewhat, but still lags behind the changes reshaping the production of both goods and services. The economy continues to change rapidly, making it hard for education to catch up. Moreover, the rapid pace of economic change means that the educational system must aim at a moving target.

"The head count is critical in our new operating environment. If you're given the okay to hire one or two new people, you'll hire some B.A.s even if they are underutilized initially, because you may not get the chance to hire again for a while."

--A Technician Supervisor

The clear advantage of the vocational education system in this environment is that it is pragmatic, and has demonstrated some flexibility to meet new demands. Indeed, over the course of the twentieth century, vocational education has been asked to serve a variety of purposes: education for occupation-specific training and immediate job placement; education for basic skills and general employability; education for equality of opportunity and access for disadvantaged learners; and education as support for local economic development and firm-specific training.

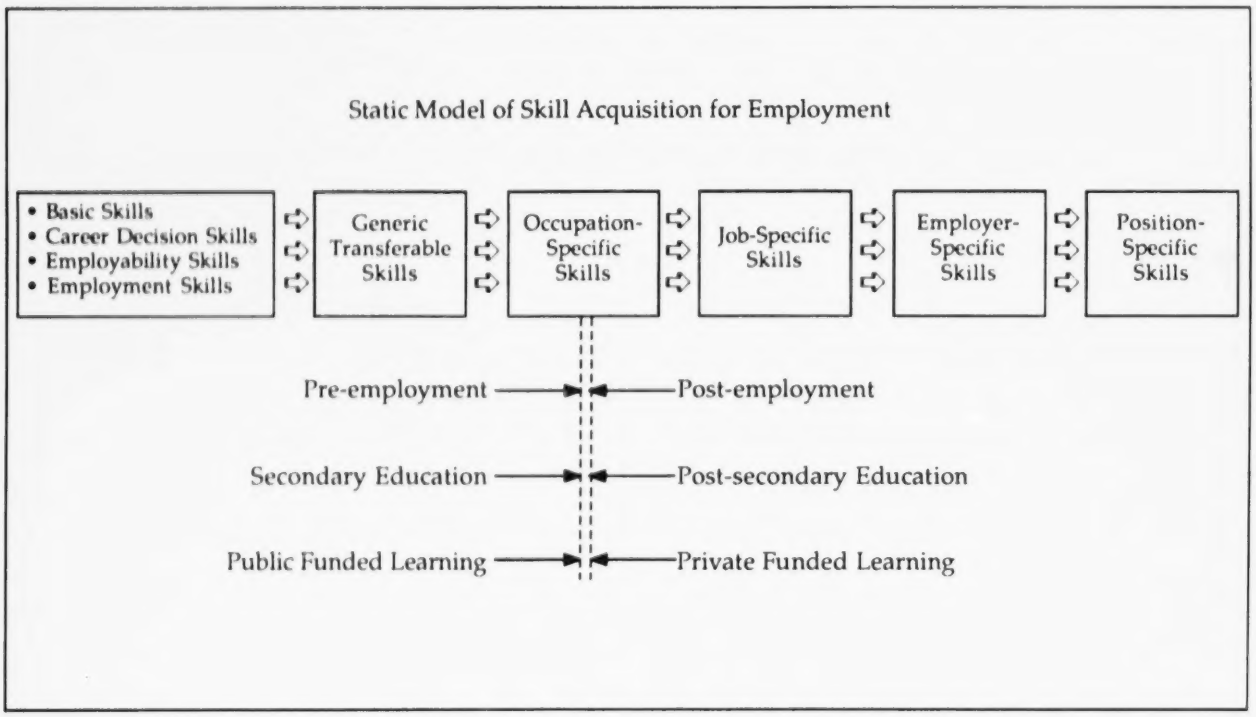
Changing to accommodate the general developmental needs of the workforce is the next evolution of the vocational education system. Given the combination of skill changes and demographics, Indiana must accept the reality that a far higher percentage of vocational learning will necessarily be workplace based. Indiana needs to build on the strengths that already exist in the vocational system to address these new needs.

Figure Seventeen presents a simple model of skill acquisition by the workforce. The flow of skills moves from the general to the specific, from basic (academic) skills through generic transferable skills, occupation specific skills, job-specific skills, employer-specific skills and finally position-specific skills. The model is useful for a number of reasons:

- It shows the additive nature of skill development--how skills build on a base completed at an earlier step.
- It shows how the process for developing occupational skills generally provides a convenient dividing point between skills learned before and after employment, between secondary education and post-secondary education, and between publicly funded learning and privately (employer) funded learning.
- Basic skill deficiencies among workers are affecting Indiana employers, and the 'new' basic skills enlarge the list of basic, generic, transferable skills that workers must have. Figure Seventeen shows that much remediation and education that traditionally happen in publicly funded secondary education will have to be accomplished in the workplace.

The most significant issues within the Indiana workforce involve growing deficiencies in basic skills and employability skills, plus the fact that many occupations now require a wider range of skills than ever before (*e.g.*, technical skills, computer skills, interpersonal skills, teamwork skills, etc.). At the same time, people who need skills training the most are already in the workforce.

Figure Seventeen



Given that reality, the ICVTE's planning function for vocational learning must consider the behavior of employers concerning their expenditures for workforce development--specifically for job training. Job training will remain a large part of a firm's investment in its workforce, and must change to include a significant component for remediation and skill upgrading.

B. Links With The Private Sector

The JIF survey of Indiana employers provides useful information on employer practices in job training that can assist the ICVTE in establishing stronger linkages between the vocational learning system and the business sector. The survey results suggest a need for more and better workplace-based learning. This has significant importance for the Commission. Vocational education is defined today in terms of its secondary and post-secondary institutions. Workplace or employer-based training should be viewed as the third side of the vocational education triangle.

The survey results indicate that the vast majority of firms (70 percent) are satisfied with their existing training options. Less than 20 percent of respondents report dissatisfaction with existing arrangements. Evidently, larger firms (which are most familiar with the training system) and firms with a younger workforce (which reported the greatest skill deficiencies) are most dissatisfied with current options. Several relevant findings stood out:

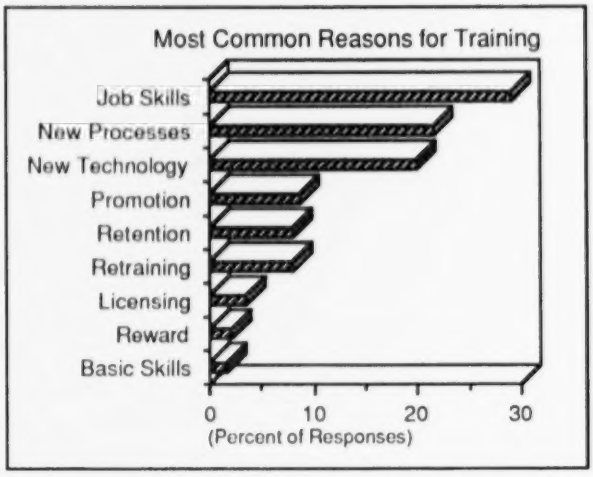
- **While most firms in Indiana (70 percent) say training is a good investment, they don't seem to believe it.** Most firms would rather hire unskilled or professional workers from outside the firm than retrain an existing employee. Firms are evenly split on what to do about skilled and managerial workers. In general, firms satisfied with existing training options are more likely to retrain workers as opposed to hiring new workers at all levels.
- **Existing training arrangements do not fill the skills gap.** This can be stated in a sequential order:
    - *Despite a positive disposition toward training, Indiana firms provide very little actual training.* The vast majority of workers receive no informal training--over 60 percent of all employers report that their workers spend "0" hours per year in informal training. And while 54 percent of all firms provide some formal training, the vast majority of workers receive no training at all. That is, relatively few workers in firms that do have a formal training system actually get training.

      About 80 percent of Indiana firms (across all occupational areas) report that they have not increased their formal training programs over the

last five years. The amount of training provided to employees varies significantly by the size of firm but not by industry. Larger firms and firms with a younger workforce conduct more employee training.

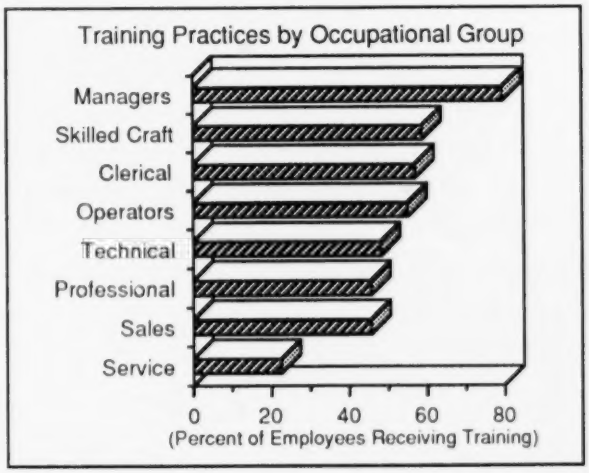
* *Existing training does not fully address all skill deficiencies.* Indiana businesses focus on improving job-specific skills through on-the-job training. The vast majority of businesses (85 percent) say that they provide training most often to increase their workers' job-specific skills (see Figure Eighteen). Yet, according to the way firms rate the quality of their workers, job-specific skills do not pose as much of a problem as other skills. Less than 2 percent of firms use training to enhance basic skills. Only about 4 percent use training to retrain workers for new jobs.

Figure Eighteen



* *Existing training does not reach the employees that have the greatest skill deficiencies.* Managerial workers, whose skills rate far higher than other workers, get the most training. Of all other occupational groups between 70 percent and 75 percent of all employees get 0 hours of training per year (see Figure Nineteen).

Figure Nineteen



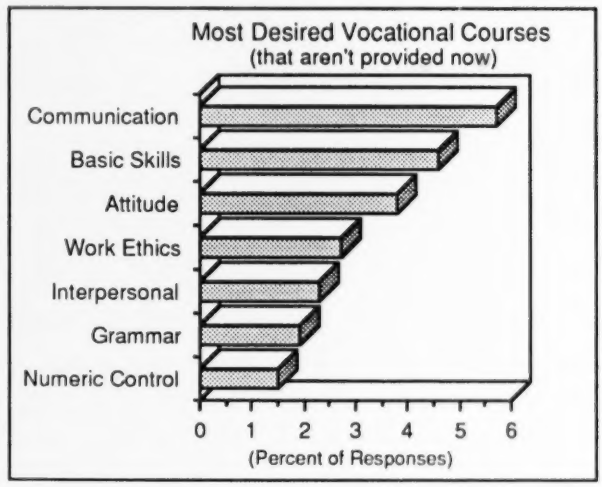
* *The training sources that employers rate most effective are not normally associated with training for basic skills, teamwork,*

communication, and other "future" skills. Employers rated in-house training programs, trade groups, and vendors as quality sources of training. Our research indicates that these tend to be focused on job-specific skills or new technology, and rarely address other skills that employers say they need. There appears to be a very large opportunity for the vocational system to fill this gap.

- **Indiana firms want more programs and courses specifically addressed to skill needs.** Although employers have not met the need themselves, they apparently want courses that meet the skill gap in the workforce. When asked to rank courses they would like to see offered to employees, courses offering training in both "future" and basic skills ranked high (see Figure Twenty).

  New technology ranked high as a reason to provide training. Firms listed several new technological developments as generating course needs in the next three years -- computer literacy, SPC, and CNC all ranked within the top ten course needs.

Figure Twenty



- **Training and retraining may be harder in the future if anticipated labor shortages actually occur.** Firms with a younger workforce and firms in sub-state regions currently experiencing a labor shortage were more apt to state that training is not a good investment because of a high turnover rate. In a labor short market, workers may tend to have a higher turnover rate. If the turnover rate is high, employers may have a disincentive to train more in the future.

In Indiana, both people and institutions (public and private) lag behind where they need to be. Getting institutions and workers up to speed is the ICVTE's greatest challenge. Skill deficiencies exist in key occupations where the public education system can play a role. And, economic transition appears to be affecting the middle- to lower-level workforce that is the real audience for vocational education.

JIF's field work and surveys confirm that Indiana tracks the same problems that exist in U.S. education system: graduates of colleges and universities are fairly competitive in the market place but the public school system breaks down in train-

ing blue-collar workers. This has forced firms to become far more attentive to teaching basic skills to their workers. In 1985, for example, 25 percent of all U.S. firms were offering programs in basic and remedial education. While JIF does not have a quantitative measure of the number or percent of Indiana firms offering remediation, our qualitative judgment suggests that far fewer Indiana firms are actually involved (in fact, less than 2 percent of Indiana firms responding to the JFF survey of employers stated that basic skills training was one of the three most common reasons for all their training investments).

C. Links to the state economic development system

Jobs For the Future interviewed economic development representatives across the state to determine how workforce preparation was taking place within their regions. We talked with directors of economic development district offices, regional and city planning commissions, city chambers of commerce, economic development corporations, and economic development authorities. These groups promote their regional locations for business recruitment and retention, diversify the local industrial base, and promote local action for developing physical infrastructure.

We asked about how these planners viewed workforce issues and the ability of the local vocational education system to produce a quality workforce appropriate for the local labor market. We also tried to find out the kinds of labor market and economic data these development planners typically used and, finally, wanted to know specific ways that demographics and workforce training were accounted for in local economic development plans.

Representatives in seven of the thirteen regions believed that employment and training needs in their region were not met by the current vocational learning system. Only three regions believed that needs were met (and these tended to be rural regions with a somewhat more static economy). The rest of the regions had initiated evaluation projects to assess the match in the local labor markets.

Virtually all the development planners agreed that their local vocational learning systems varied in quality--showing some good programs and some very weak ones. In general, planners reported that local businesses register continuous dissatisfaction with the low performance level of secondary and post-secondary vocational graduates. Local strengths and problems, according to those interviewed were attributed to several factors:

- Instructional quality, which used to vary considerably teacher-by-teacher, has been helped to some degree by the availability of high quality satellite educational programs.
- Institutional change within the IVTC system has helped increase the quality of some post-secondary offerings. Ivy Tech recently decentralized

its program approval process, authorizing local campuses to add or delete courses and programs. Most interviewees felt that decentralization offered the possibility that a local Ivy Tech school could target specific local populations more responsively, and could voice new and creative ideas about educational delivery. Employers, we found, responded well to working cooperatively with Ivy Tech as a result of decentralization. Several of the regional representatives, however, reported that decentralization had engendered very little change.

- Secondary vocational education was discussed in far less detail by the economic development sector. Very often, our interviewees reported that secondary vocational programs were invisible institutions that rarely sought input from local businesses about skill needs or the match between program graduates and labor demand. In fact, the planners conveyed sharp criticism that secondary vocational education is seen primarily as a teacher-driven curriculum in which employers' needs are not met and that very few teachers could claim personal familiarity with the operations of private firms.
- The lack of articulation between IVTC and most other in-state post-secondary programs creates a very real and inhibiting barrier to support of the vocational system. Employers are reluctant to use Ivy Tech resources for workforce education because those credits don't transfer if the employee later chooses to attend a degree program at a different institution (meaning that any tuition or fees paid by the employer have to be incurred again).
- Employers and development planners recommended that vocational programs at both the secondary and post-secondary level develop a stronger basic skills content. Several local leaders suggested that many vocational programs adhere too strictly to a narrow function of training for job-specific skills on the assumption that basic skills education is the responsibility of other parts of the state's educational system. As a result, basic skills deficiencies within the workforce have been passed on for employers to resolve.
- There appears to be a serious gap between the education and training needs defined by industry and those defined by teachers and educational administrators.

Very few economic development representatives believed that they had an adequate local process for structuring economic development input into local or regional education and training plans. Some regions had successful models, usually involving formally structured planning groups with regularly scheduled meetings involving multi-sector representation.

Of the regions that had no such formal coordination effort in place, most saw a direct need for one. However, those who were looking to actively improve coordination were often frustrated at the parochialism of different key players. A basic problem to overcome involves differences in educational philosophy and in simple political party splits. A few representatives noted the virtual impossibility of

even getting most local leaders to agree that workforce problems exist. They cited a peculiar Hoosier penchant for 'ignoring bad news and other things that make you uncomfortable.'

D. A Need for Economic Data

Indiana needs, but lacks, a good, credible source of useful and independent information about its economy, about the industrial structure of the state and how it it changes, about the qualitative changes in the labor market, and about demographic change. There are many groups, agencies, and institutions that are involved in the collection, assembly, analysis and distribution of economic data, but the system, such as it is, lacks the user friendliness necessary for good planning.

The limitations of the state's existing system are readily apparent:

- In JIF's discussions with local economic development officials, *all* of the representatives believed that they had more than sufficient access to data sources (including resources from state agencies, from university facilities, and from national sources) but *none* of them could cite how general national or statewide trends were showing up in their local economies.
- Virtually none of the local economic developers were aware of Indiana's major demographic changes and degree of outmigration--influences that will combine to cause dramatic labor shortages across the state in the next decade.
- Virtually none of the local economic developers were aware of the fact that all of Indiana's new workers are women. Economic developers are not aware of how the feminization of the labor force effects job creation, nor do they realize that women's needs must be factored into local economic development strategies.
- Very few people in the state appreciated the degree to which a few durable goods manufacturing industries still dominate Indiana's economy. Most seem to believe that Indiana has made the transition to a thriving technology-driven service-based economy.
- A survey of vocational educators revealed the lack of good economic information. Almost half of the educators were not satisfied with the information they had on Indiana's changing economy. Educators ranked state economic and occupational data last on the list of information sources. Eighty percent of the educators surveyed were not satisfied with the knowledge their guidance counselors have of Indiana's changing economy. Ninety-six percent of those surveyed believe that vocational students have a poor to fair understanding of Indiana's economic picture and what those changes mean for their future.

- The Indiana Department of Commerce, the public agency charged with knowing the most about Indiana's business climate, has not prepared any specific studies of the competitive or market environment of key industries for more than three years.
- The majority of labor market information prepared by state agencies is done to satisfy the minimum work requirement of the U. S. Bureau of Labor Statistics.

V. The JIF Action Plan

Given the urgency dictated by the context of change, the JIF program suggests several specific actions that the ICVTE should take to move the vocational learning system forward to meet the workplace demands of the future. The ICVTE needs to establish itself as a highly visible leader in planning and promoting continuous workplace education. It needs to move the system to the point where it can address emerging skill and labor needs proactively.

The Commission must devote a high priority to developing a consensus among all leaders for ways to meet the state's workforce needs. The effort to assure that Indiana will have a skilled and competitive workforce in the future presents challenges to educators, state and local leaders, the private sector, labor organizations, and workers. The Commission, with careful attention and support, is capable of playing a central role in communicating and coordinating action among all sectors.

As stated at the outset, the challenge engendered by economic transition requires more than just tinkering at the margins of public educational policy. It requires a reconceptualization of all of the state's institutions and programs, to make them fit together and work as a system.

· Action Plan: Six Strategies for Success

I. Build a vocational learning system.

II. Target job related learning to the jobs of the future, not of the past.

III. Ensure the quality of vocational education graduates so that being a vocational education graduate is synonymous with having state-of-the-art critical thinking and other future skills.

IV. Support and strengthen economic development activities within the state.

V. Encourage greater involvement from the private sector.

VI. Communicate the need to prepare Hoosiers for a competitive future.

I. Strengthen the vocational learning system

The Commission, together with the Governor, the Legislature, and every vocational education institution, should move to make Indiana the first state in the nation to set and act on a vision of the vocational learning system as a process of continuous education for all categories of occupations and all sizes of companies. Ideally, the vocational learning system should be a "seamless web" from the perspective of its users--both students and employers. And, looked at from a broader perspective, the vocational learning system must be fully integrated with all education delivery systems.

Therefore, the ICVTE should undertake specifically to:

- **Make Indiana the first state in the nation to allow full credit transfer between educational institutions.** Indiana has made great progress in addressing program articulation in specialized areas. But the state needs to move farther and faster to really achieve a system that appears as a "seamless web" to the user. Full articulation agreements between institutions would allow a person to continue their education without unnecessary repetition.
- **Improve the school-to-work transition by expanding the use of structured job learning.** Indiana must make far more efficient use of the few young workers it has, if the state is to remain competitive. The recent Jobs For Graduates program is a great start for the many young entrants to the labor force. Common solutions include greater use of internships, cooperative placements, and apprenticeship programs which place students in a working environment that is related to his or her academic learning.
- **Implement regional information and planning structures.** The loss of funding for the state's regional vocational planning councils is of significance to the Commission. Most trends point to the need for government to rethink how it prepares and delivers services--decentralization and individual level action is the key. Each region should develop an active planning group to better understand changing workforce needs and to develop action to deliver the right education and training.
- **Encourage general academic educators and vocational educators to see themselves as part of the same team.** Indiana needs to move to an education system that integrates the best of both approaches.

II. Target job related learning to the jobs of the future, not of the past

Indiana's public sector educators need to know a great deal more about specific labor demand and skill needs within the workplace. Because of changes in the economy and expected labor shortages, the education system must anticipate and plan for labor force needs, not react to them in a crisis. Yet, it is not enough to look at existing skill gaps when matching labor demand with labor supply. Like all competitive firms operating in an uncertain world, the ICVTE must look to likely changes in job requirements and how those will affect skills of future workers. This challenge doubles the difficulties of vocational education planning: not only must the vocational learning system immediately address the skill gaps that exist with today's workforce in today's occupations, but the system must implement ways to better understand jobs and skills as they change.

- **Focus vocational learning resources to where the clients are located: at the workplace.** ICVTE can facilitate the delivery of education and training services that are close to the user. Promote the workplace as a place of continuous learning--a place for eliminating deficiencies in basic skills, for acquiring new technical skills, and for understanding the future skills.
- **Develop a strategy to replace retiring skilled labor.** In part, this requires knowing which workers will be leaving from which jobs and from which companies. Both firms and institutions need to be ready with learning system and career guidance assistance to move new workers into these occupations. ICVTE needs to encourage support from other state agencies, especially IDETS or the Department of Commerce, to develop ways to track these issues.
- **Improve the tracking and understanding of occupational change in Indiana.** Economic transition puts the greatest stress on a few key occupations within certain industries that are critical to the state's economy. The Commission should see that the state's economic information provides useful qualitative data that can be reported regularly to the institutions that must respond with adjusted curricula.
- **Establish a network of industrial coordinators to help employers in their regions determine employee training needs.** Some states make sure these coordinators are expert in matters of production technology, business organization and management, as well as education and training. Consulting services should be free of charge and require no obligation of the client to accept recommendations.
- **Encourage increased training practices for the state's small business sector.** Any attempt to increase the amount of workforce learning in Indiana must address directly and creatively the problem of underprovision of education and training to workers in small and mid-sized firms. This will require strategies designed to address the particular problems of those firms: (a)

lack of information on training options; (b) lack of financial resources to internalize training costs; (c) lack of market power to make sure that program or curriculum offerings are a good fit with small business needs.

Trade associations at the industry level and chambers of commerce at the local or state level should organize outreach programs to help smaller firms improve their knowledge of and ability to evaluate programs and courses available from both public and private sector providers. In Indiana, where the Indiana Chamber of Commerce runs the SBA-funded small business development centers--the only state in the country with this structure for SBDCs--the Chamber might take a lead role.

The creation of the Indiana Strategic Development Fund by the Indiana General Assembly could provide support for this effort. The Fund was established to encourage businesses to collaborate in development efforts where it was difficult to perform separately.

- **Target More Training Subsidies to Smaller Firms.** Across the nation, state-funded job training programs have become a standard part of a state's economic development strategy. However, as the experience of BIRT and TFP in Indiana illustrate, these subsidies generally go to the large employers in a state or to large employers relocating in-state. Indiana needs to return the incentive value to its customized training programs to assure that scarce public dollars are used in the most efficient ways possible.
- **Establish a "Small Business Training Team" that can help small businesses improve their on-the-job training efforts and simplify their task of sorting through outside training programs.**

III. Ensure the quality of vocational education graduates so that being a vocational graduate is synonymous with having state-of-the-art critical thinking and other future skills.

The vocational learning curriculum must lead to demonstrable proficiencies in all basic skills--not just reading, writing, and computation, but the full range of 'new basic skills.' All elements of the system--schools, private companies, unions, and state training programs--need to emphasize competency-based learning for skills as well as content. Every ten minutes of instruction must be the highest quality possible.

- **Vocational education graduates must be able to shape their own workplace--they must be well educated in all skill areas, in new technologies, and in new ways of doing business so they can become sources of information and inspiration to their employers and fellow employees.**
- **The state must promote professional development among vocational teachers at all levels.** There are four major efforts to address here:

- Teaching professionals must have a greater understanding of the private sector--the jobs and organizations for which they are preparing graduates. The Commission should promote greater use of internship placements for full-time instructors.
- To accommodate the varied groups of workers and students that will go through the vocational system in the coming years, teachers will have to be far more sensitive to different individual learning styles and to a wider variety of workplace skill applications.
- Teachers need to concentrate on the remediation needs of learners.
- Teachers need to develop new ways of teaching the broader future skills to assure program graduates have demonstrable competencies.

IV. Support and strengthen economic development activities within the state

State and local leaders in Indiana must keep in mind the overriding importance of strengthening the state's economy by encouraging growth in higher-wage, higher value-added industries.

- Improving the future wages of Indiana workers will require actions on a number of fronts. Real absolute and relative wage improvements will require increases in labor productivity in each major segment of the Indiana economy. Productivity improvements can be supported by providing industry with a workforce that is well grounded in the academic basics, equipped with technical skills, trainable and flexible. Having higher and broader skills will affect staffing patterns and internal mobility paths, because it will enable workers to be assigned more diverse responsibilities to increase output potential.
- Economic development efforts targeted at retaining and expanding the high value-added components of manufacturing and attracting higher value-added service industries can play a critical role in productivity improvement. Indiana's service sector is a relatively low wage sector, with underrepresentation of key business service and professional service industries that offer a greater number of professional/management positions and accompanying higher earnings.
- Employment opportunities for young college graduates are directly influenced by the growth and character of the state's business service sector. If Indiana's youth are to be encouraged to attend college, and remain in the state after graduation, greater opportunities in financial, business, and professional services should be encouraged.

V. Encourage greater involvement from the private sector

The ICVTE must take a central position representing the interests of the state in working to encourage greater private sector support for new ways of vocational learning. The ICVTE, like all agencies in the state, should remember the basic trend that is shaping future learning: the traditional distinctions between job training and vocational education are less and less obvious. The workplace of the future will be a place of integrated learning for all workers. In that sense, it is vocational education in its purest form.

- **Increase the human resource investments among the private sector.** Estimates suggest that American companies spend about one percent of their revenues on worker training and education. Indiana firms should take the lead in making strategic investments in the workforce by increasing the amounts spent on labor development to four percent of gross revenue, which is the estimated level of investment practiced by firms in leading industrialized countries throughout the world.

- **Large firms that have already internalized many of the costs of developing a training strategy can help smaller firms reduce the costs of training their workers.** JIF recommends three approaches for how this could work: (a) large firms can train the small business trainer, providing an opportunity for small businesses to send one employee to the large firm's internal training program who can then go back to his or her firm and train others; (b) large firms can offer their facilities for use by small business training consortia; and (c) large firms can provide training directly to small business employees or provide specialized training for their instate suppliers and subcontractors in a variety of areas.

- **Labor unions should help organize training for employees in certain firms and industries, keeping costs down by achieving economies unavailable to individual firms.** In certain industries, where the percentage of unionized workers is significant and the fragmentation of the industry is extensive, the union is often able to take the lead in organizing smaller firms for initiatives they would not otherwise take.

- **The public and private sectors should work together to promote management development for smaller firms.** A large segment of the Indiana economy hasn't yet made the transition to new styles of workplace organization combined with effective use of technology, especially in small and medium sized firms. Many of the lessons learned by the multi-nationals in terms of business organization, education and training of workforce, etc., are lessons that can provide guidance to the smaller firms.

VI. Communicate the need to prepare Indiana for a competitive future

Everyone faces obstacles in accepting change, but having a good understanding of why change is occurring helps break the barriers. It is the role of a public education and communication efforts to explain the changing economy and to show how change can equal exciting opportunities for all Hoosiers.

A public education and communication strategy for the ICVTE should concentrate on meeting the following goals:

- To strengthen the link throughout the state between education, economic development delivery systems, and all employers.
- To take the lead in identifying and acting on emerging workforce development issues.
- To bring in new players to participate in the ICVTE's workforce development efforts.
- To expand and intensify ICVTE's partnership efforts through regular and specific communication programs.
- To marshall support for the JIF recommendations and the Commission's on-going efforts.
- To initiate on-going, multi-sector strategic planning and action through a series of interactive meetings in 14 Indiana regions on the implications of economic change in Indiana and in each local region.

To meet these goals, the ICVTE should concentrate on using communication efforts in five key ways.

- **Communication is a means through which the ICVTE can listen.** Through listening, the ICVTE can evaluate and improve all vocational learning programs. To achieve this purpose, the ICVTE should concentrate on listening to economic development groups, private industry (including small to mid-sized employers) other educational groups, and students. The existing technical committees provide a beginning avenue for learning about different changes affecting workforce preparation. More consistent and more direct contact, however, with all of the above audiences would strengthen the ICVTE's knowledge base as well as its image throughout the state.
- **Communication is a means through which the ICVTE can collaborate.** A communication effort can be designed to bring in other key actors to participate in the ICVTE's action efforts. Collaboration efforts with private industry, labor, other education groups, community based organizations, and other state agencies, can occur through a regular schedule of regional meet-

ings, or through working with other partners to implement JIF recommendations.

- **Communication is a means through which the ICVTE can help others respond to the workforce challenge.** Many groups need to be better educated about economic change. Communication efforts could consist of developing education tools for employers such as a seminar series or videotape and workbook curriculum to help companies develop human resource plans for introducing new integrated technologies. The ICVTE could also institute regular professional development seminars for vocational teachers to learn about the economic trends, the implications of these trends for their teaching, and how they can better meet the challenge of teaching for a competitive workforce.
- **Communication is a means through which the ICVTE can convince and build support for specific change.** To implement new policies and programs requires assuring a clear understanding of the reasons for initiating the change and exactly how the proposed action will help. This kind of communication should be pursued with top state leaders, local leaders, key sectors involved with the particular policy change, other state agencies and the press. The best way to assure that this information is communicated is through a series of briefings about the proposed initiative to the key potential actors and to the press.
- **Communication is the means through which the ICVTE will raise awareness.** The more people understand how the economy is changing, how structural changes demand that Indiana develop its own, highly qualified workforce, and that vocational education is becoming an important means for doing this, the more people will be willing to participate in the effort.

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